

REMARKS

I. Introduction

In response to the Office Action dated June 27, 2005, claims 1, 16, 31 and 41-45 have been amended. Claims 1-45 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Claim Amendments

Applicant's attorney has made amendments to the claims 41-45 as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims, and were not required for patentability or to distinguish the claims over the prior art.

III. Prior Art Rejections

A. The Office Action Rejections

In paragraphs (2)-(3) of the Office Action, claims 1-14, 16-29, and 31-44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Aotake, U.S. Patent No. 6,411,771 (Aotake) in view of Kutner, U.S. Patent No. 5,489,943 (Kutner). In paragraph (4) of the Office Action, claims 15, 30, and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Aotake and Kutner and further in view of Tonomura et al., U.S. Patent No. 6,571,054 (Tonomura).

Applicant's attorney respectfully traverses these rejections.

B. The Applicant's Claimed Invention

Independent claims 1, 16 and 31 are generally directed to processing a video stream received by a computer. Claim 1 is representative and comprises the steps of:

receiving a video stream, wherein the video stream comprises multiple frames;
analyzing the video stream to identify scene changes between frames of the video stream;

and

marking one or more user or private data fields of one or more frames of the video stream to indicate a scene change, in a manner transparent for encoded content within the frame, and in order to provide an index of access points for displaying specific scenes or segments.

C. The Aotake Reference

Aotake describes an MPEG1 real time encoder board that generates index data as an evaluation value representing the complexity of a picture. A scene change parameter representing the degree of a scene change occurring in the picture is then calculated from the index data. The scene change parameter is associated with a scene change pointer, that is, position information on a location of the picture in which a scene change occurs to a degree indicated by the scene change parameter. The scene change parameter and the scene change pointer are recorded as an index in an index file. On the other hand, an MPEG system stream output by the MPEG1 real time encoder board is stored in an MPEG file separated from the index file.

D. The Kutner Reference

Kutner describes a one pass adaptive bit rate control method. Data from a previous video field is used to calculate a quantizer scale factor for use in compressing a current video field. Large changes in compressed data size is used to detect scene changes. When a scene change is detected, a marker is inserted into the compressed data stream in place of the compressed field. An interpolated field is substituted during decompression for the scene change marker.

E. The Tonomura Reference

Tonomura describes an invention in the creation of an electronic image book provided with a book-type interface; a video is analyzed; images are extracted from the video under predetermined event type conditions; the extracted images are stored as index information in an index management table; images are selected from the index management table under desired conditions and laid out as a sequence of representative images in a page screen; item numbers of the laid out representative images, information about their positions on the page and information about a video file linked to the representative images are recorded in a page management table in correspondence with pages; and at the same time, representative image data corresponding to the item number is recorded in an image data table.

F. The Applicant's Claims Are Patentable Over The References

Applicant's invention, as recited in independent claims 1, 16 and 31, is patentable over the references, because the claims recite a specific combination of limitations not found in the references.

The Office Action, however, asserts the following:

3. Claims 1-14 and 16-29 and 31-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aotake (US 6,411,771) in view of Kutner (US 5,489,943).

Regarding claims 1, 2-3, 6-7, Aotake discloses and meets the limitations associated with a computer for processing a video stream received, the apparatus and associated method comprising the steps of:

- receiving a video stream, wherein the video stream comprises multiple frames (Fig. 6a, col. 20);
- analyzing the video stream to ID scene changes between frames and an encoder (col. 20, "evaluation of a picture subjected to encoding by referencing the frame memory unit 110", "amount of information" or "amount of code as a result of encoding");
- marking with respect to the field or frames of the video stream (col. 4) and wherein the encoder is a compression encoder which compresses a stream into a file on the computer, claim 10.

Regarding claims 1, 3, 7, Aotake fails to mark fields, fails to clearly disclose updating a data bit, which indicates a scene change.

Kutner teaches marking fields and updates at least a data bit, col. 3, lines 8-11, as taught by Kutner.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Aotake by incorporating marking fields and updating the stream with a marker bit, as taught by Kutner, being an obvious variation on marking video for scene changes, marking the actual fields of the frames, being a design choice to utilize known obvious techniques to mark video fields for scene changes, as would be deemed obvious to those skilled in the art.

Regarding claims 4-5, the combination as applied fails to disclose wherein the field comprises a user or private data fields.

The examiner takes official notice that private and user data fields are known to record additional user or private data, as is well known, therefore, it would have been obvious to those skilled in the art at the time of the invention to store markers in the private or user areas, as these areas are deemed set out for additional data purposes, as is obvious to those skilled in the art.

Claims 8, are deemed analyzed and discussed with respect to the claims above.

Regarding claim 9, Aotake discloses more than one bit for which indicate the amount a scene has changed in relation to the corresponding scene change attribute, wherein Kutner marks the fields to indicate, but, fails to disclose marking a field with more than one bit, representing the amount of a scene has changed.

It would have been obvious since Aotake generates the additional data, wherein Kutner marks fields.

It would have been obvious to those skilled in the art at the time of the invention to utilize the generated data representing additional bits generated by Aotake and to embed at least some additional data in to the field, as taught by Kutner, as is obvious to those skilled in the art with these references in front of themselves.

Regarding claim 11, Aotake disclose and meets the limitation of wherein a frame of the video file representing a scene change comprises a full frame, Figs. 21 & 24, displayed full frames.

Regarding claim 12, since the scene change is field based, wherein the DELTA frame is less than one full frame, reads on using fields to detect scene changes (see Kutner, as applied).

Claim 13 is analyzed and discussed with respect to claim 9, further rendering obvious to scan the fields having amount of scene change attribute added thereto and to provide an extraction tool to select frame exceeding an amount of scene change (cols. 45-46 and Fig. 19, "exceeding a predetermined threshold value be displayed on the source window 362. The threshold value is entered by the user"), as is deemed obvious to those skilled in the art.

Regarding claim 14, disclose at col. 10, that either the encoder and decoders can be either software or hardware, but, the combination fails particularly mention wherein the extraction tool access the scene change data in the fields in real time.

Aotake discloses that hardware can be used (col. 10), wherein the examiner takes official notice that, hardware is obviously capable of processing at higher levels, than software, such as real time video processing, therefore, it would have been obvious to those skilled in the art, to playback at in real time or the normal playback speed with respect to the video standard and detect additional field data in real time, as is obvious to those skilled in the art.

Claims 16-29 and 31-44 have been analyzed and discussed with respect to the claims above, but, claims 31-44 represent an article of manufacture, deemed met by the combination with Aotake col. 49, having a program to let a computer process, therefore an article of manufacture or a computer program to facilitate the method with a computer being the hardware.

4. Claims 15, 30 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aotake (US 6,411,771) and Kutner (US 5,489,943) and further in view of Tonomura et al. (US 6,571,054).

Regarding claims 15, 30 and 45, the combination as applied fails to disclose generating a storybook with the extracted frames.

Tonomura teaches at col. 3, "automatically creates a book like electronic book by a procedure of analyzing a video sequence to detect various events such as a scene change" and

col. 10, lines 58-, "Items that can be placed in page are every kind of data that can be managed by a computer, such as text, images, representing images linked to a video and sound data. All the items that are carried on the electronic image book are items numbers for identification ...", as taught by Tonomura.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the combination by utilizing the scene change frames and creating automatically creating an electronic image book, wherein the book can have text, therefore, a story book with extracted scene change images, as taught by Tonomura.

Applicant's attorney disagrees.

The Aotake, Kutner and Tonomura references, taken individually or in combination, do not teach or suggest marking one or more user or private data fields of one or more frames of the video

stream to indicate a scene change, in a manner transparent for encoded content within the frame, and in order to provide an index of access points for displaying specific scenes or segments.

In Aotake, a scene change parameter and scene change pointer are recorded as an index in an index file separate from the MPEG file. However, as admitted in the Office Action, Aotake fails to mark fields of the frames to indicate a scene change.

In Kutner, on the other hand, a marker indicating that a scene change has occurred is stored into the memory in place of the compressed video data. Thereafter, upon decoding, if a scene change marker is found in place of the compressed video data, a substitute, interpolated field of data is generated and provided as an output.

Consequently, even when combined, Aotake and Kutner do not teach or suggest marking user or private data fields of the frames to indicate a scene change, in a manner transparent for encoded content within the frame, in order to provide an index of access points for displaying specific scenes or segments.

Instead, the combination of Aotake and Kutner teaches the creation of a separate index file for storing scene change parameters and pointers (Aotake), and storing markers in place of compressed video data in the frame when a scene change occurs for control of the volume of compressed data and to prevent buffer overflow (Kutner).

Moreover, with regard to the "Official Notice" assertion by the Office Action that private and user data fields are known to record additional user or private data, and therefore it would have been obvious to those skilled in the art at the time of the invention to store markers in the private or user areas, as these areas are deemed set out for additional data purposes, Applicant's attorney disagrees. Specifically, Applicant's attorney submits that marking user or private data fields of the frames to indicate a scene change, in a manner transparent for encoded content within the frame, and in order to provide an index of access points for displaying specific scenes or segments, runs directly counter to the teachings of the prior art, i.e., Aotake uses a separate index file and Kutner replaces the encoded content. Certainly, no reference cited by the Office teaches a similar combination of elements. Thus, this noticed "fact" cannot be considered to be common knowledge or well-known in the art per M.P.E.P. §2144.04. Consequently, Applicant's attorney requests that the Office provide documentary evidence supporting these assertions or withdraw the rejections.

Finally, Applicants' attorney submits that Tonomura does not overcome the deficiencies of Aotake and Kutner. Recall that Tonomura was only cited against dependent claims 15, 30 and 45, and only for the purposes of creating an electronic book by analyzing a video sequence.

In summary, the various elements of Applicant's claimed invention together provide operational advantages over Aotake, Kutner, and Tonomura. In addition, Applicant's invention solves problems not recognized by Aotake, Kutner, and Tonomura.

Thus, Applicant submits that independent claims 1, 16, and 31 are allowable over Aotake, Kutner, and Tonomura. Further, dependent claims 2-15, 17-30, and 32-45 are submitted to be allowable over Aotake, Kutner, and Tonomura in the same manner, because they are dependent on independent claims 1, 16, and 31, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-15, 17-30, and 32-45 recite additional novel elements not shown by Aotake, Kutner, and Tonomura.

IV. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicant's undersigned attorney.

Respectfully submitted,

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